DOCUMENT RESUME

ED 267 708 HE 019 193

| | |
|---|---|
| TITLE | Student Intellectual Development. A Symposium. |
| INSTITUTION | Bowling Green State Univ., Ohio. |
| PUB DATE | 8 Nov 82 |
| NOTE | 22p.; For related document, see HE 019 194. |
| AVAILABLE FROM | Bowling Green State University, Institutional Studies, Bowling Green, OH 43403. |
| PUB TYPE | Viewpoints (120) -- Speeches/Conference Papers (150) |
| EDRS PRICE | MF01/PC01 Plus Postage. |
| DESCRIPTORS | *Beliefs; *Cognitive Structures; *College Students; Conferences; Higher Education; *Intellectual Development; Learning Theories; Models; *Outcomes of Education; Schemata (Cognition); *Student Development |
| IDENTIFIERS | *Bowling Green State University OH |

ABSTRACT

Issues concerning student intellectual development during college are considered in a symposium paper and in two reactions by faculty members. The symposium was sponsored by Bowling Green State University as part of the Academic Outcomes Project, which explores the effect of college on student growth and development. The reflective judgment model is the focus of Patricia King's paper, "Developing a Rational Belief System: Intellectual Development in the College Years." The model contends that the reasons a person uses to explain beliefs are related to assumptions about knowledge and reality. These assumptions serve as students' perceptual filters through which they understand what they are learning. The assumptions provide categories the individual uses to perceive and organize information and to make judgments about an issue. The process of forming judgments becomes increasingly complex, as illustrated by seven stages proposed by the model. At the lower stages, authorities serve as sources of absolute truth, while at the higher stages, reality is understood as existing objectively but the process of inquiry is seen as being subjective and fallible. The paper also considers the results of interviews in which students were presented questions about four controversial issues. Reactions to the paper are provided by Thomas Kinney and Sandra Packard. (SW)

**********
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
**********

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

James L. Litwin
Office of Inst. Stud.
Bowling Green State University

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

✓ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

## ACADEMIC OUTCOMES PROJECT

*Advisory Panel*

Frank Baldanza
Patricia King
Carney Strange
Elmer Spreitzer
Stephen Vessey

---

# CONTENTS


| | Page |
|---|---|
| Foreword | iii |
| Introduction<br>*Dr. Carney Strange* | 1 |
| Developing a Rational Belief System:<br>Intellectual Development in the College Years<br>*Dr. Patricia King* | 2 |
| Reaction One<br>*Dr. Thomas Kinney* | 12 |
| Reaction Two<br>*Dr. Sandra Packard* | 14 |
| References | 16 |

*A special acknowledgment is given to Dr. Bernie Rabin, Director of the BGSU Faculty Development Center, for his encouragement and support of the symposium.*

# FOREWORD

The goal of the Academic Outcomes Project at BGSU is to conduct a series of investigations aimed at gaining a better understanding of the effect of the University experience on student knowledge and abilities. It is aimed at developing useful answers to problematic questions associated with the growth and development of students.

Two specific objectives of the Academic Outcomes Project are: 1) the establishment of baseline data on what students know at various points in their academic careers, and 2) the maintenance of a University dialogue on teaching-learning issues through a series of reports, workshops and symposia. The first of these symposia is recorded in these proceedings.

The members of the advisory panel to the Academic Outcomes Project were pleased when over 100 faculty and staff members attended the symposium on "student intellectual development." The attendance exhibited a vital faculty and staff interest in teaching and learning. Those in attendance showed a desire to exchange ideas, and to hear what others had to say about the intellectual development of college students.

Dr. Patricia King, an educational consultant and researcher on intellectual development and the central speaker at this first symposium deserves special thanks for her thought-provoking address. Our appreciation also goes to BGSU faculty members Drs. Carney Strange and Thomas Kinney and to Dean Sandra Packard, for their establishment of a context for the symposium and for their reactions to Dr. King's presentation.

Dr. King's remarks not only exhibit the insights of a scholar who has devoted considerable professional time and intelligent thought to the issue of how students change and develop, but also demonstrates the importance of the topic to us all.

James Litwin
Director of Institutional Studies

# INTRODUCTION

*Dr. Carney Strange*

I would like to welcome each of you to our Symposium today. It's refreshing to gather together as a faculty these days for reasons other than budgetary concerns.

I must first acknowledge the instrumental support of Dr. James Litwin of the Office of Institutional Studies, and Dr. Bernie Rabin of the Faculty Development Center. Their input and assistance have been invaluable to the development of this Symposium.

The format for this Symposium will include a featured presentation followed by two reactors: Dr. Thomas Kinney of the English Department, and Dr. Sandra Packard, Dean of the College of Education. We will then spend some time in open discussion.

By way of introduction I might say that one does not have to teach very long to realize that individuals bring different assumptions about what it means "to know" to the learning task. At times these assumptions come out with a great deal of tenacity as in the case of the controversial, Nobel Prize-winning chemist, Linus Paulding: "I don't enjoy controversy, but it irritates me when people reject conclusions that seem to me to be clearly true!" At other times such assumptions might be expressed with and are accompanied by a certain frustration and disillusionment, as with the following freshman's comments in a letter to the editor of the *BG News*: "It seems like college examinations don't test the student on the material covered in the lecture, but whether or not the student can decipher a trick question. Why can't the test come right out and ask for a simple answer?"

Whatever these assumptions may be, it's clear that they *are* important for understanding the relationship between teaching and learning, and the advancement of student intellectual development. Perhaps the 19th century Danish philosopher, Soren Kierkegaard, said it best:

> "If real success is to attend the effort to bring a man to a definite position, one must first of all take pains to find him where he is and begin there. . .the helper must first humble himself under him he would help, and therewith must understand, that to help does not mean to be sovereign but to be servant. . .Instruction begins when you learn from the learner, when you put yourself in his place so that you may understand what he understands and in the way he understands it."

Dr. Patricia King is a person who has spent a good deal of time and effort over the past seven years listening to the way students understand. She is a graduate of Macalester College, and completed her doctoral studies in educational psychology at the University of Minnesota in 1977. Most recently, Dr. King has served as Assistant Vice-President for Student Services at Ohio State University, and Senior Research Psychologist in the Division of Student Services of the University of Iowa. She is currently engaged in educational consulting, focusing on the intellectual development, decision-making strategies, and the moral and ethical development of young adults. I present to you Dr. Patricia King.

# DEVELOPING A RATIONAL BELIEF SYSTEM: INTELLECTUAL DEVELOPMENT IN THE COLLEGE YEARS

*Dr. Patricia King*

We are gathered here today as part of the planning process for the Academic Outcomes Project which has begun here at Bowling Green. I must say, in a time of retrenchment when so much of our attention is consumed by issues of retrenchment, budget cutting and their implications for the whole educational process, it is most refreshing to refocus our attention on our educational mission and to ask: what is the responsibility of institutions of higher education regarding student learning? Knowledge and the process of gaining it have changed people's lives in significant ways over the centuries, and colleges have played important roles in this process.

*ATTENDING COLLEGE IS A SPECIAL EXPERIENCE*

Attending college is, after all, a significant and special event in students' lives. There are several reasons for this. First, college is one of the few endeavors in a person's life that is specifically devoted to one's development. (King and Fields, 1980). Second, the considerable investment of one's personal resources (e.g., time, money, physical and emotional energy) that goes into pursuing a college education is seldom matched by any other endeavor in our society. Third, development during the college years occurs at special times in people's lives, times that are ripe for their development. For many, it occurs during the transition from adolescence to adulthood, the time when people come to grips with themselves as individuals, and with the option to choose the type of individuals they wish to become in the future. For others, an increasingly larger proportion, this comes during the adult years when people are reevaluating who they are and what they want their role in society to be. And how do they resolve these questions and rediscover that role? Often they turn to the academy to gain new experiences and new skills; for some, they return to gain a new identity.

There is one more factor that makes attending college a special experience. Colleges provide a very special set of resources, a diverse set of people, programs and physical materials that help students pursue an education. Many of these resources are available elsewhere, but in colleges, these resources are drawn together for a common educational purpose.

*DOMAINS OF DEVELOPMENT*

Development in college stretches into many different domains of a student's life. I'd like to map out some of the areas in which one would expect development to occur, starting with the *intellectual* domain. This focuses on one's capacities as a thinker and as a learner, including the process by which a person learns to gather information, analyze it, synthesize it to create new meaning, and evaluate its merit and potential. We'll return to this domain in some detail in a few minutes.

A second domain focuses on issues of *identity* development, the development of one's sense of self, or discovering who you are and who you want to become as a person. There's also the *interpersonal* domain, learning how to interact more effectively and more intentionally with others. Last, and perhaps most important, is the development of a sense of *moral and ethical* principles, principles that can be used to guide one's life and to define what kind of responsibilities one has in the larger societal context.

These domains do not exist discreetly; rather, they interact and they overlap. Growth in one domain often restricts or enhances growth in other domains. Thus,

intellectual development can be stifled both by an environment devoid of ideas and challenges, as well as by a corrupt or an unchallenging social or moral environment. By means of another example, just as it is difficult for a student with poor communication skills to participate effectively in and learn from class discussions, it is also difficult for students to learn intellectual honesty, (e.g., why plagiarism is such a serious offense) in an atmosphere where moral integrity is compromised.

Promoting students' intellectual, moral, and social development is certainly a lofty educational goal, but one that is not achieved overnight. In fact, it would be incorrect to assume that these attributes develop fully over the four-year timespan of college. Rather, such an achievement, a time metamorphosis, evolves slowly, usually as a combined result of many experiences, social, personal, and academic. Development is a process that consists of many small steps. Some of these steps are so awkward at first that it seems like we're watching regression and not progression in our students. Consider, for example, that awkwardness that you see in the first lab report, the first research assignment, the first literary analysis, the first moral dilemma, or the first confrontation with plagiarism. It's easy to see those awkward steps. It's harder to see that those steps are in fact steps in a process. If we assume that the attributes outlined above haven't emerged fully formed by the time a student registers as a freshman, then it becomes our role as educators to promote this process of development, to assist students to go from those early, awkward stages to stages that reflect a more sophisticated, more defensible and more adequate approach.

These domains provide one way of delineating student development, but there are many others currently in use. The registrar, for example, charts students' progress according to credits earned, resulting in the familiar categorization of students as freshmen, sophomores, juniors, and seniors. Professors, too, usually have systems, however implicit, for delineating levels of student development. "Introductory" versus "advanced" courses or courses for majors and non-majors usually reflect differing assumptions about students' abilities and instructors' expectations. In each of these cases, such categories provide perceptual filters through which people can organize information into manageable and meaningful units. "Perceptual filters" is a psychological term; those in the humanities would likely call them "worldviews," while the sociologist would refer to "sociocultural influences." The point is that our perceptual lenses, whatever their derivation, provide a frame of reference against which we interpret our observations. For professors, they provide a means by which to interpret and better understand their observations about students and about the learning and teaching process. In this presentation, I would like to describe a model of intellectual development that attempts to describe students' perceptual filters, and in so doing, to assist professors to interpret their observations about students' educational experiences. This model focuses on students' understanding of the nature of knowledge, the nature of reality, and how these assumptions are used to form the way in which they justify their beliefs. I'll ask you to shift from looking at things through your perceptual filters (a difficult but enormously insightful exercise) and try on a new set of lenses in order to understand how students use their perceptual filters to understand their educational experiences, both in the classroom as well as in other settings.

*ELEMENTS OF STUDENT INTELLECTUAL DEVELOPMENT*

As we begin this discussion of student intellectual development, it is important to draw the distinction between puzzles and problems. *Puzzles* are those questions that have single, logically valid answers, for example, converting a Fahrenheit temperature reading to a centigrade scale, or solving an algebra problem for "x." *Problems*, by contrast, have a variety of possible answers, the evidence is often incomplete or ambiguous, and they are resolved through an evaluation of relevant information. Examples of current events problems in the news recently would be evaluating the strength of the "safety net" of social programs, or judging the "success" of the military take-over of Poland and its effects on the Solidarity Movement, or determining the cause of the Air Florida jet crash

in Washington, D.C.

A second distinction that is important to make here is between two types of problems: intellectual problems such as those just described, and moral or political problems. Using the same examples from above, a moral problem would be defining a country's responsibilities to care for the needy. A political problem would be determining how President Reagan should have responded to the Polish military take-over. Our discussion today will focus on intellectual problems. This type of problem is of interest because it is reflective of the quest for knowledge about the world that lies at the core of virtually every academic discipline and everyday controversies of the "what really happened" variety.

Realizing the centrality of intellectual problems to the mission of higher education, it then becomes important to ask how people learn to resolve such problems, or such controversial issues. We started asking this question at the University of Minnesota in 1975. At this time, Dr. Clyde Parker initiated an "Instructional Improvement Project" involving members of the Educational Psychology Department and a group of faculty members from the College of Agriculture. I was fortunate to be a member of this team. We began our project by interviewing professors about their expectations for students and about the types of things that they wanted students to gain from their college experiences. We also began an extensive series of interviews with students. We asked them to talk about the process of learning, the role of the professor, the responsibility of the student, the difference between right and wrong knowledge, the difference between study in the humanities and study in the sciences ("In the sciences you study facts; in the humanities you study opinions"), and why it is that people disagree about the answers to these questions.

Predictably our questions yielded a great variety of different responses, but they also yielded several identifiable patterns. Seven years and many revisions later, we have data from interviews with over a thousand students from across the nation and a model we believe captures the differences in the way students answered our questions as well as provides a preliminary explanation for those differences. This model is entitled the "Reflective Judgment Model" (Kitchener and King, 1981) and is based on the work of Dewey (1973), Perry (1970), Broughton (1975), Harvey, Hunt and Schroeder (1961), Reigel (1973) and Loevinger (1976). It was developed in cooperation with three colleagues of mine, Dr. Karen Kitchener, Dr. Mark Davison, and Dr. Clyde Parker.

What we found in the interviews was sometimes astounding, frequently amusing, and often disturbing. Our procedure was to present a series of four controversial issues to students and to ask them to discuss several questions about each issue. The controversies we chose were the following: How did we as human beings come to be? Is the special creation or the evolutionary approach the more accurate description? The second dilemma we asked about was the objectivity of newsreporting, or how you know whether to believe what you read in the newspaper. The third dilemma involved whether chemicals added to foods are safe, and the fourth involved the building of the Egyptian pyramids. (My friend and colleague, Phil Wood, found a cartoon which captures some of the notions that the students shared with us about the creation of the pyramids. It shows the pyramids in their final stages where all but the apex has been constructed. It also shows a giant crane lifting this block and being fitted perfectly into place. The caption reads: "Now as soon as we bury this crane, then we'll really have them fooled." And it's true, they do have us fooled!) For each issue, the following questions were asked: What's your point of view on this topic? How do you know that? Why do you believe that? On what do you base your point of view? Do you know that for sure? If two people disagree about this question, is it the case that one is right and one is wrong? Can you say one opinion is better and another opinion is worse? and How is it possible that even experts disagree about this controversy?

What we found by conducting these interviews was, in a nutshell, that students, whether in high school, in college, or graduate school, were trying to come to grips with the uncertainty of our knowledge about the world, the knowledge that they thought their education was supposed to provide. What happens when you suspect that all you've learned and all you know, you can't know

for sure? "For if you don't know for sure," they said, "how do you know at all?" This realization elicited a variety of responses. One was sheer panic. "Well I guess I ought to drop out of school until I get my head together." (Why is it that colleges, with all of their resources deliberately designed to assist students to seek new understanding of such problems, are not perceived as being especially *good* places to get your head together?) Another response to the realization that there's little we can know for sure is that it doesn't matter anyway, as if to say about our search for truth, "never mind." And what happens, when even the experts, teachers, scientists, ministers, claim that they don't know for sure? In this case, our college students tell us, you might as well believe what you want to believe. For until the experts know for sure (a very interesting perspective on the search for truth), then it doesn't matter what you believe. You may think this is an outrageous kind of statement, as I did the first time I heard it. It has been even more startling to learn in subsequent years how commonly we've heard that comment in response to the questions we've asked students in our interviews.

What these interviews have revealed then is a disturbing lack of understanding about the relationships between facts, interpretations and beliefs. What I'd like to do is share some verbatim examples of college students' statements on these topics. Most of these are in response to two of the questions we asked, "If two people disagree about this issue, is it the case that one is right and one is wrong?" and "Can you ever say that one opinion is a better opinion and another opinion is a worse opinion?" The responses fell into several different categories. The first one is called "*Believing What You Want To Believe.*"

1. "No, (one wouldn't be right and one wrong), and it doesn't matter what you believe or what I believe because until one of them finds an answer, then I'm just going to believe what I want to believe."
2. *Student:* "No, I don't think anyone is wrong because I don't think anyone knows, so they can believe whatever they want."

   *Interviewer:* "Well, can you both be right?

   *Student:* "Sure, cause there's no right or wrong answer."

   *Interviewer:* "Why not?"

   *Student:* "Because no one knows for sure, because you can't prove it."

In other words, there's no right or wrong answer *because* you don't know for sure. This is a key point.

Another category of examples I have entitled "*What is a Fact?*" or "*Facts Versus Interpretation.*"

1. My favorite one in this category came from a biology student. At this time we were asking students what the difference was between study in the humanities and study in the sciences. He said, "I study biology because biology is very straightforward. I mean a bird's got two feet; that's pretty conclusive." Now, what is the fact and what is the interpretation in that comment?
2. In response to the dilemma regarding newspaper stories, one person responded by saying that it made a difference which newspaper you picked up, and that *The Wall Street Journal*, she said (by the way, I don't know if this is a he or a she but I'm using the generic "she" here) "*The Wall Street Journal* is really based on fact, what's really happening. You sit there and it's just plain. You can tell what the price of gold is, there's no feeling in it—it's totally objective. They record the true facts."
3. *Student:* "No, I don't think (you can ever know for sure)."

   *Interviewer:* "Why not?"

   *Student:* "Well, because it's the evidence again. The evidence would

have to be definitive."

*Interviewer*: "What counts as definitive evidence?"

*Student*: "Well, in the case of the pyramids, it would have to be the historians saying, 'OK, this is what happened.' "

Now, if any of you historians think you don't have the influence that you might want, recall this example and know that your word counts as definitive evidence to some.

4. *Interviewer*: "How do you know when to believe what you read in the paper?"

   *Student*: "A lot of it is what you want to believe. But, if you're there you can see for yourself what's real and what's not. And you've got to be able to judge and sift the facts from the truth. But of course, you can never be sure unless you're there."

The implication here is that you can know for sure if you are there. But how do you know what to believe when two eyewitnesses disagree.?

The next category is entitled "*Can An Opinion Be Correct?*"

1. *Interviewer*: "Now, do I understand you right—that without knowing who's right you can't say one opinion is better than another?"

   *Student*: "No, you can't say it's better, but you could be inclined to believe one over the other, but you can't say it's better."

So whereas you could be inclined to believe, it's not for reasons that one can justify as being better, you would just be inclined to believe. There's a dichotomy there between an opinion and a correct opinion, the latter not being a possibility using their perceptual filter.

2. Or restated by another subject, "No, I wouldn't say I was correct, it's just my opinion about this issue." Opinions, therefore, aren't subject to that kind of scrutiny.
3. Or another person: "I think one could be more convincing than the other, but I think they both believe they're right, and if they have data to back up their reasons, I don't think one could be right and one could be wrong."

Here, neither the quality of the data nor how it's interpreted is seen as important. As long as you've got data, then both opinions can be right.

What these examples reflect is an underlying disillusionment and a genuine confusion about the search for truth. This confusion is seen in many forms, abrogation of responsibility for one's own beliefs, cynicism towards those who hold their beliefs strongly, skepticism about the truth of any interpretation or frustration with instructors' emphasis on the *process* of arriving at a conclusion. Some even claim that the search for truth itself is futile because there is no truth out there to be found.

These responses reflect the assumptions of the middle stages of the "Reflective Judgment Model," stages 3 and 4. These stages reflect the predominant styles of reasoning found in nationwide studies of undergraduate college students.

For the sake of comparison, let's examine some examples of reasoning styles from the lower stages of the model. These lower stages reflect the assumption that authorities are the source of absolute truth and that there is a direct equivalence between what I see and what is.

1. *Student*: "I believe my parents and the Church. It's worked into me that way."

This was on the question of special creation, and I thought, "Truth is worked in?" You know, it's kind of like hand lotion: if you rub it in long enough, it'll be absorbed.

2. In another example, we were talking about the objectivity of news reporting where a student said: "What do you mean 'objectivity of newsreporting?' Of course the news is true. Walter Cronkite wouldn't lie to me."

(You can see our examples are dated; we haven't heard the same thing said of Dan Rather yet.)

Other responses, though, reject both this absolute orientation, the sole reliance upon authorities, as well as the skepticism, or the "I believe what I want to believe" approach that is characteristic of the middle positions. Rather, they endorse a rational but qualified view.

1. *Interviewer:* "When people differ about matters such as this, how does one make a determination about what is correct?"

   *Student:* "How well thought out the positions are, at what level one chooses to argue the position, what kinds of reasoning and evidence one would use to support it, how it fits into the rest of one's world view or rational explanation, how consistent the way in which one argues on this topic as compared with other topics.'

I would wager that this is how we would like our students to be able to reason, and perhaps we organize our teaching as though they do reason this way. However, we've not found this to be the case with most of the undergraduates we have interviewed, and not even the case among some of the graduate samples.

*THE REFLECTIVE JUDGMENT MODEL*

These three sets of examples reflect the major patterns of responses found in the interviews that resulted in the creation of the "Reflective Judgment Model." This model consists of seven stages which show how a network of logically related assumptions about knowledge and reality interact to form the basis of people's beliefs (Kitchener and King, 1981). That is, the model posits that the reasons a person chooses to explain or justify his or her belief are inextricably related to his or her assumptions about knowledge and reality. These assumptions provide categories, however implicit, to perceive and organize information in order to make judgments. In other words, these assumptions serve as students' perceptual filters, filters through which they understand what they're learning.

Let me give an example. If you believe that authority figures are the source of absolute knowledge (indicative of the assumptions in Stages 1 and 2), then it is reasonable to justify one's beliefs by a reference to an authority's beliefs. In other words, "what is true for an authority figure is true for me." By contrast, some students tell us that knowledge is idiosyncratic to the individual. This was a surprising finding. What it reflects is people's understanding that the process of knowledge acquisition is subjective, that the way you look at a problem and the way you define the issue makes a difference. In some respects this realization is the hallmark of an educated person, to understand that how you define a problem influences the type of data that you will gather about it and perhaps the manner in which that data will be evaluated. But they are not using the filter one might expect here, saying that given a perspective or a certain discipline and its assumptions, let's look at it this way. Rather, they are using a filter that allows them to understand different perceptions by saying that because the world is different to different people, then reality itself is idiosyncratic. In other words, there is no one explanation for the creation of the pyramids, or there is no way of determining the cause of the Air Florida jet crash. It depends how you look at it. It depends how you evaluate that information. Knowledge itself, therefore, is seen as being idiosyncratic. If knowledge is defined as being idiosyncratic to the individual, then it follows that beliefs will be based on idiosyncratic evaluation of data ("what is true for me is not necessarily true for others.") And that explains why there are often different interpretations of materials in class: because the interpretations are idiosyncratic to the authors. There is a certain logical coherence

to these assumptions. For example, it would be inconsistent and illogical to believe both that authority figures are the source of absolute knowledge and that knowledge is idiosyncratic to the individual.

The different assumptions about reality and knowledge imply different forms of justification. At each stage the network of assumptions provides categories the individual uses to perceive and organize available information and to make judgments about an issue. The process of forming judgments becomes increasingly complex, sophisticated and comprehensive from the lower to the higher stages. For example, at the lower stages (1 and 2), authorities serve as sources of absolute truth, and therefore correspondence with authoritative views is the major criterion used in justifying beliefs. At the highest stage (7), by contrast, reality is understood as existing objectively but the process of inquiry is seen as being subjective and fallible. The major criterion for justification at this stage is the degree to which the belief is based on a rational process of conjecture that demonstrates the use of evidence and the use of rules of inquiry appropriate to the issue at hand. This form of justification is based on the principle that knowledge statements may be evaluated as more or less likely approximations to the truth and that they must be open to the scrutiny and the criticisms of other rational people. This form is termed "reflective judgment." This model is summarized below. (This summary is taken from King, Kitchener, Davison, Parker and Wood, 1982).

**Stage 1** is characterized by a *copy view* of reality and knowledge, or the belief that there is an absolute correspondence between what is perceived and what is. Beliefs, therefore, require little or no justification since it is assumed that one must only observe to know the truth. As a consequence, individuals at this stage do not perceive the controversial nature of the issues presented.

The admission that knowledge may not be directly and immediately known by the individual represents an advancement over Stage 1 in that the individual moves from an egocentric belief system, "that which I observe is true," to a system in which the individuals seek answers outside his or her own experience. Further, the individual can now accommodate a two-category belief system: beliefs that are right or correct and those that are wrong or incorrect.

**Stage 2** In Stage 2, the individual maintains the belief that there is an objective reality which can be known with certainty, but which is not known by everyone. Here, certain knowledge is seen as the domain of authorities who are presumed to know the truth, e.g., a scientist, teacher or priest. When pre-existing answers do not already exist or cannot be learned by simple observation, beliefs are justified by copying the views of an authority. In cases where authorities are found to disagree among themselves, they are now categorized into two groups: legitimate and illegitimate authorities.

**Stage 3** In Stage 3 individuals go further in acknowledging the temporary inaccessability of truth by acknowledging that knowledge is not always immediately known even to legitimate authorities. However, they maintain the belief that absolute truth will be manifest in concrete data at some future point. While evidence is yet incomplete, no one (including authorities) can claim to "know" beyond his or her own personal impressions or feelings. Therefore, in areas of uncertainty, beliefs can be justified only on the basis of what "feels right" or what they want to believe at the moment. Such claims are basically a-rational. Authorities who endorse a point of view or who even suggest that a given theory is a "more likely explanation" are often perceived as being biased or arbitrary and of having no logical or evidential basis for their choice.

Stage 3 offers a further expansion of categories over Stage 2. They now include three: right, wrong and uncertain. Alternative conceptions of reality, diverse points of view, different theories, etc. can now be assimilated as areas of uncertain knowledge.

**Stage 4** In Stage 4 individuals still maintain that there is an objective reality, but they suggest that it cannot ever be known with certainty. The reasons they give are concrete and specific, e.g., that an event happened too far in the past for us to have direct knowledge of it. Since there are many possible answers to every question, but no absolutely certain way to adjudicate between answers, knowledge claims are understood as idiosyncratic to the individual.

Stage 4 provides an advancement over Stage 3 in the admission that uncertainty is not just a temporary condition of the knowing process. In this admission there is a parallel awareness that one cannot simply wait until enough evidence accumulates in order to know the truth. This forces individuals who are faced with justifying their beliefs to seek more defensible reasons for beliefs beyond their personal feelings and to begin to see data as the key to building convincing, defensible beliefs for themselves.

**Stage 5** In Stage 5 the understanding that our uncertainty about knowledge is not temporary generalizes to the belief that objective knowledge does not exist and that reality can only be known through subjective interpretation of data. Beliefs are understood as strictly relative to a particular perspective. The logic here is that beliefs are justifiable only within a given perspective because different perspectives have different rules of inquiry, e.g., Egyptology versus astronomy.

At this stage the understanding that beliefs may be justified within a particular context allows the individual to move beyond the completely idiosyncratic justifications found in Stage 4. Since knowledge claims are understood as representing an interpretation within a particular perspective, the views of others (including authorities or experts) are no longer judged as merely a reflection of their own biases. This allows the individual to be detached when examining different views, seeing them as other legitimate interpretations.

**Stage 6** Stage 6 is distinguished by the belief that since knowledge is based on subjective interpretations of data, objective knowledge is not possible to attain. Some judgments or beliefs may nevertheless be judged as better founded than others. This claim is based on principles of inquiry that generalize across contexts rather than on principles that are specific to a context. For example, the criteria of adequacy of data and quality of arguments apply to the arguments of opposing sides of an issue. The consequence of this is that individuals begin to suggest that some points of view may be justified as better founded or more rational and reasonable than others. Thus, a major advancement of Stage 6 over Stage 5 is the ability to see relationships between subcategories in different domains. Further, the individual now has access to rules that allow him or her to make evaluations across these sub-categories, e.g., choosing the position that has the more coherent argument and the more plausible interpretation.

**Stage 7** Stage 7 is characterized by the understanding that inquiry is an on-going process that can lead toward truth over the course of time and with the work of many investigators. While these individuals accept the limitations of the knower in perceiving reality directly, they suggest that it is possible through the process of critical inquiry to determine that some hypotheses or judgments have greater truth value than others. This allows the individual in Stage 7 to make more definitive judgment claims than in Stage 6 and to suggest that judgments can be justified as the most reasonable solution to a problem based on the critical inquiry process. Knowledge is understood, therefore, as the outcome of the process of critical inquiry and the knower takes on a crucial role in constructing knowledge. Because they also acknowledge that the inquiry process is fallible, however, knowledge claims must remain open to re-evaluation through the scrutiny and criticisms of other rational people, the accumulation of new data, and the formulation of new theories.

*SUMMARY OF RESEARCH ON THE REFLECTIVE JUDGMENT MODEL*

A number of studies have been conducted using this model with over a thousand students across the nation. This research has consistently shown that older and/or better educated students score at higher stages than do their younger counterparts with less education. While specific mean scores have differed for different institutions and different samples, the trend of the scores has been for high school juniors and seniors to score at Stages 2 and 3, for undergraduate college students to score predominantly at Stages 3 and 4, and for graduate students to score at Stages 4, 5, and 6.

These scores might lead you to ask whether the observed differences across educational levels are attributable to a higher level of intellectual ability among those who have successfully negotiated the educational system, or to other selection factors (that is, the universities use academic aptitude or prior evidence of reflective thinking as screening criteria). These questions have been addressed in several studies (Brabeck, in press; King and Parker, 1978; Kitchener and King, 1981; Lawson, 1980; Mines, 1980; Strange and King, in press; Welfel, 1982; and Wood, 1980). These studies have shown that academic aptitude has not accounted for the differences in reflective judgment across groups. Three studies have also investigated the relationship between reflective judgment and another major aspect of intellectual development, critical thinking (Brabeck, in press; Mines, 1980; and Wood, 1980). All concluded that while areas of overlap exist between the two constructs, each is describing a distinctive set of features relating to intellectual development.

Perhaps the single most important question in terms of the development of a model such as this is whether development can be observed and mapped over time. This requires a longitudinal study, testing the same individuals at different points in time. One such study has been completed to date (King, et al., 1982). These researchers found that reflective judgment scores of students at each of three educational levels have increased significantly over a two-year time span. These results are particularly encouraging because, as you will recall, we were looking for a model that would capture differences in the way students reason about controversial problems, reasoning which we hypothesized was being taught during the college years.

To date, no differences in Reflective Judgment level have been found among undergraduate samples by curricular areas, such as liberal arts compared with agriculture or engineering, social science disciplines with mathematical sciences (Welfel, 1982; King and Parker, 1978). However, at the graduate level, students enrolled in social science disciplines have scored significantly higher than their counterparts in mathematical sciences (King, 1982). These preliminary findings are intriguing, and merit further inquiry.

*IMPLICATIONS FOR COLLEGE TEACHING*

These data are both encouraging and discouraging. On the one hand, intellectual development does seem to occur during the college years, and we have identified an assessment tool that is sensitive to qualitative changes in students' thinking. On the other hand, college seniors as a group do not consistently evidence reflective thinking and they have difficulty distinguishing between facts and interpretations of facts. What has their experience been in terms of their intellectual development while in college? If we endorse reflective thinking as a proper goal for higher education (Dewey, 1933; Kitchener, in press) and accept the professor's role as challenger as well as certifier of the intellect, then it is important to determine to what degree our students are able to engage in reflective thought and to find effective means of promoting their intellectual development. To do so requires assessment, but not necessarily formal testing. Rather, asking students directly and often to explain or defend a point of view, whether in person, through an exam question or in class discussion, will not only challenge their current belief system, but will also yield relevant assessment information. The importance of giving students direct experience explaining points of view, their own as well as others', cannot be overemphasized as an educational experience. As a matter of fact, we have learned that our interviews themselves

sometimes serve as educational interventions. One student asked us to contact him every year for the interview because he felt he was changing so fast that he needed the interview to help him keep track of the changes. Another reported enrolling in different courses as a result of the interview after realizing she couldn't explain her beliefs to her own satisfaction.

Challenging alone, however, is only half the task, as Sanford (1962) has noted. The other half is to offer support to this struggle, in this case, by serving deliberately as role models, exposing the process of your own thinking, and teaching students the skills of judgment-making that we may take for granted. Many students are genuinely confused about how to evaluate alternative interpretations of evidence, and agonize over making a choice between them. One student reported she cut short her agony by tossing a die, and rationalized that this was defensible because she had chosen impartially. Surely we can teach a better method than this.

As members of an educating community, it is also our role to create stimulating situations. There is nothing like a rich set of new and diverse experiences to challenge one's world view or to realize the constraints of a perceptual filter one has outgrown. For some students, such experiences must be experienced directly, not vicariously. It is easy to rely on readings and verbal communication, but for some, this is too far from their reality to be meaningful. And while direct experiences serve as powerful forces in stimulating development, their full value is often realized only through reflective sharing of them with others. As the Romantic poets observed, "experience recollected in tranquility" is the source of inspiration.

It is difficult to learn how students are interpreting the nuggets of reality that professors are teaching them. How would you respond, for example, if a student said about your class: "He just teaches his opinions, so it doesn't matter if what he teaches is correct or not." Or: "That's not a fact yet as long as people disagree about it." Learning how facts and theories, beliefs and opinions or true facts and knowledge are related is a central concern in the college years. Promoting intellectual development is a central goal for institutions of higher education, and many factors influence an institution's success at achieving this goal. Knowing about the process by which students develop a rational belief system has been presented here as a new tool, a new perceptual filter for professors seeking to help achieve that goal.

# REACTION ONE

## *Dr. Thomas Kinney*

I had a few jokes about reactors breaking down and loosing noxious clouds all over the horizon, but I'll forego them.

I had a number of reactions: my first reaction was:

> I just *knew* there were different stages of cognitive development. I'm glad we agree they're right out there and I believe they're right. We all know that, don't we?

And then I had another reaction, which was:

> Well, most of us know they're true, but some don't. That's why we need authorities to tell us, to spread this around. I'm sure glad Dr. King can tell us about some of the things we just don't know right off.

Then I had another reaction. I thought about it and it occurred to me that:

> We don't know yet if everybody goes through all those stages or actually fits them; it's hard to know what's true out there. But when Dr. King gets the research done, it'll be all set.

Then my fourth reaction was:

> Of course, there's a lot of work to be done to find out if these stages apply internationally. Do Chinese have these seven stages? What about Republicans? Do they have seven stages? Maybe we'll never find out for sure—there's so much to study and how can anybody learn it all. And maybe somebody, just somebody, will come up with another set of stages or different conceptions of a way to look at cognitive development. After all, everyone's entitled to his opinion and has his own conception of things.

Then I had another reaction, my fifth reaction:

> I wonder if anybody is ever in only one stage at a time. Does the theory apply to actual individuals—I don't see how it could really apply to actual individuals—or are they harder to classify; do they cross from one stage to another? You know, I think that theory is pretty subjective. It's Dr. King's theory. It works well for her. She has this interview and this questionnaire, but that's her system, you know—those social science techniques! It's just a system. I don't think we can ever really know how people are developing. Everybody's working hard at it, I know.

Then I had yet another reaction:

> Yes, but Dr. King did ask a lot of questions and listened to many people, and a number of people did the same thing and fitted into recognizable categories. It's hard to argue that they didn't see the same thing approximately, even within the supposedly subjective, theoretical scheme. Social sciences aren't all bad. It's a way of looking at things, and most of us can understand the things they say, as in *Psychology Today*. It's better than asking an astrologist or the *Book of Changes*.

Then I had *another* reaction:

> It may well be that in time a true understanding of the various stages of cognitive development and reflective judgment will be arrived at, if enough people work concertedly or systematically toward understanding. Maybe we can do it in our time. We'll never know exactly what happens, but we can build careful models for pragmatic ends and test them.

So those are my seven reactions to the cognitive development theory.

My first encounter with cognitive development was something that Carney Strange told me about. I don't remember whose theory it was, but he had to explain it three or four times. It did explain why students sometimes do not learn; they were not operating at the same level required either by the instructor or the course. There was disjuncture between their capacity for learning and the instructor's expectation; and there was a good deal of resultant frustration. I remember seeing some films (that I associate with Piaget) in which children at one stage are not able to judge the quantity of a fluid because it's in different containers, or the

lengths of certain rods if they're placed in certain positions; at a later age they *are* capable of conducting this operation. So there's a maturational process, like a time lock on a bank vault.

With this idea in mind, and looking back I remember I expected my students to analyze an argument when they hadn't reached that stage of ability yet. They might be able to compare and contrast, but they weren't able to divide things into components. They wanted to be able to feed the text back to me and repeat and summarize, instead of analyzing. They couldn't pick out main points or generalize very well. I tended to modify my assignments, I hope, to fit their capacities, at least to start at their level, and that required a diagnostic system.

After listening to the paper and reading about it, I think I find some of the things that students say a little bit more understandable than I did in the past. Statements like: "I thought we were here to learn Shakespeare not crit-ize our writing." The idea was that Shakespeare is a quantity that you can accumulate and write down in your notes, as opposed to a discovery process which you do in writing.

"What's wrong with my writing! I know what it means! It's perfectly clear to me." (It may be difficult for others but that's their problem!)

"The instructor kept trying to force his ideas about the poem on us—I mean, he always had the right interpretation. But everybody has their interpretation."

"This instructor believes the student should do all the work!"

"I mean, if you analyze a poem you ruin it!"

"Instead of all these questions, I wish you'd give us answers!"

We have all observed that students at one stage have a low tolerance for unresolved issues; they want resolutions of problems. They "know" that ought to be possible. These mismatches go up and down between Stages 2 and 3, 3 and 4, and everyone senses that cognition and learning are interrupted.

A side-thought: it occurred to me that we instructors—by virtue of our training and our exalted positions and high salaries—are sometimes conditioned into being authorities, and we want to stay at Stage 1 and be the authority, to present the material for undistorted acceptance. Not all cognitive interruption is caused by the students.

Just two more comments. One valuable feature of this model is that the various stages are connected by a series of almost continuous mental events. One step flows easily from the one preceding it, the higher from the lower; it occurred to me to ask why doesn't an individual go through all of them at once and suddenly get a continuous flow of thought. I haven't seen any explanation of the changes between one stage and another. I suspect that there are external factors, either in reality or in the personal development of the person: the knower's assumption, he perceives, does not match the condition—there's something disjunctive—and trial and error begins, or introspection occurs. In Stage 2, for example, the knower could learn of non-immediate reality through someone else, but how he learns about Stage 3 assumptions of reality (that some reality may not be known by anyone) is a jump that is a little hard to understand. But it is a crucial question: what causes or leads the knower from one stage to another.

Turning back to the classroom, one can discover the stages of one's own students, let's say, and then try to find a teaching level which is conducive or invitational to the next stage. I suppose that's the aim. I'm not sure how all of this will work because, while I do see logical development, I'm not completely clear what triggers that development or leads to it.

My final comment is that the model provides understanding of cognitive development; it is a descriptive scheme which identifies a pedagogical goal and provides a means of measuring it; although I'm unsure about practical ways to develop it.

Let me close with a quotation.

> "To a man who knows nothing, mountains are mountains, waters are waters, and trees are trees. But when he is studied and knows a little, mountains are no longer mountains, waters are no longer waters, and trees no longer trees. But when he has thoroughly understood, mountains are once again mountains, waters are waters, and trees are trees."

# REACTION TWO

*Dr. Sandra Packard*

At the risk of identifying, or maybe revealing my stage of intellectual development, I can tell you three things I know for sure. Of course, I don't know what I don't know, but there are three things I do know. First, I won't be as entertaining as our first reactor: second, Republicans only have three stages (they had seven, but they cut the budget); and third, Dr. King has provided us with not only an excellent presentation, but a heuristic model for understanding the intellectual development of college students.

Dr. King's model does reflect my experiences as a high school art teacher. I don't know how many of you have had the opportunity to teach an aesthetic or performance discipline. If so, I'm sure you have probably heard this comment many times: "What do you mean I got a C? Art can be anything you want it to be and my judgment is as good as yours. I worked hard so I think I deserve an A!" The reflective judgment model helps us to understand this student's logic. Dr. King's presentation raises a number of other important issues that are worth discussing today. As Murphy's Law: Book 2 suggests: "new systems generate new problems." Thus, I'd like to take my part of the reaction and raise some of those problems or questions for you today, perhaps for discussion with Dr. King, or for later thinking. These are not presented in any particular hierarchy of importance, but only as they occur to me.

1. Should a university routinely and systematically try to identify stages of intellectual development in their students? For what purposes should this information be used? For example, we identify students' ACT scores, but allow them to select the courses and the level of the courses as they so desire. Should we try to put students into a tracking system based on their level of intellectual development?

2. Should individual faculty members try to identify stages of intellectual development of their students? If so, how should they adapt course content and instructional pedagogy accordingly? What happens when an individual faculty member recognizes a range of stages among students in a class, for example, Stages 2 through 5? How does one address this? It would seem that to measure the level of intellectual development and then to ignore this information without any form of individual or institutional response, would be tantamount to a form of negligence. But in what ways should we respond and with what kinds of administrative support?

3. Are there some disciplines in the university, by virtue of their content, purpose, or method of inquiry, that would be more appropriate than others for developing reflective judgment? If so, should we then re-examine our general education and program requirements to utilize those disciplines more heavily? For example, should we look at whether or not general education should consist of lower level introductory survey courses or upper level inquiry courses? Should we eliminate courses that are less conducive to the development of reflective judgment, e.g., physical sciences versus humanities?

4. What are the implications of Dr. King's theoretical model for the hiring of faculty and the use of graduate students as instructors? Should they first be evaluated to see if they have reached the advanced stages of this model? What happens when a student at Stage 5 is matched with a graduate instructor or faculty member at Stage 2?

5. Are there implications here for the use of objective, standardized testing procedures for large course sections which may or may not be able to measure reflective judgment? This may be a particular problem with faculty who have not had any training in the construction of standardized tests and may simply be asking for right or wrong answers, or memorized data.

6. In view of this model, what should we be doing about evaluating teaching?

Should student ratings of teaching focus on growth in reflective judgment stimulated by the course content and its methodology? What is the import of setting this as a goal of current faculty evaluation rating procedures? Are current procedures biased by the reflective judgment factor? For example, could there be a faculty member whose teaching evaluations are low because he or she is presenting a course at Stage 5 and the student is demanding a course at Stage 1 or 2, e.g., "Don't tell me I need to think, just give me the right answer!" or "I think that professor is very unfair because all I want to know is how to do it and she's asking me to evaluate it."?

7. If some disciplines or courses encourage reflective judgment more than others, are there implications for how we should sequence them in the curriculum? Should we sequence them based upon the development of reflective judgment rather than traditional criteria such as historical content, e.g., 18th century, 19th century, or level of involvement with the discipline, e.g., introductory vocabulary and concept first, and inquiry later?

8. What is the relationship between reflective judgment ability and other measures of life achievement, e.g., job satisfaction, emotional stability, goal attainment, satisfaction with self? What should we be doing about those other aspects of college life?

9. Finally, is the development of reflective judgment encouraged more significantly by the stimulation of diverse peer interaction or carefully orchestrated teacher instruction? What message does Dr. King's work have for us in the use of lecture versus discussion format, large sections versus small sections, on-campus classroom experiences versus practicum, cooperative, or field experiences? What contextual factors in the university system affect the development of reflective judgment, e.g., grading practices?

In summary, these are just some of the many questions that could, and should, be raised if we are to claim reflective judgment as an appropriate educational goal for our institutions of higher education in general. If we are to assume that this should be a goal, then we ought to look seriously at a method of evaluating a teacher's performance on this for promotion and tenure. Perhaps we could think of this seminar as Stage 1 in an inquiry into the meaning of this model for education at Bowling Green State University.

# REFERENCES


Brabeck, M. The relationship between critical thinking skills and the development of reflective judgment. *Journal of Applied Developmental Psychology*, in press.

Dewey, J. *How We Think*. New York: D.C. Heath, 1933.

King, P.M. Reflective and critical thinking in the college years: An interdisciplinary assessment. Manuscript in progress, 1982.

King, P.M. and Fields, A.L. A framework for student development: From student development goals to educational opportunity programs. *Journal of College Student Personnel*, 1980, *21*, 541-548.

King, P.M., Kitchener, K.S., Davison, M.L., Parker, C.A., and Wood, P.K. The justification of beliefs in young adults: A longitudinal study. Manuscript submitted for publication, 1982.

King, P.M. and Parker, C.A. Assessing intellectual development in the college years. (A report of the instructional improvement project, 1976-1977.) Unpublished manuscript, University of Minnesota, 1978.

Kitchener, K.S. Educational goals and contemporary models of reflective thinking. *Educational Forum*, in press.

Kitchener, K.S. and King, P.M. Reflective judgment: Concepts of justification and their relationship to age and education. *Journal of Applied Developmental Psychology*, 1981, *2*, 89-116.

Lawson, J.M. *The relationship between graduate education and the development of reflective judgment: A function of age or educational experience*. Unpublished doctoral dissertation, University of Minnesota, 1980.

Mines, R.A. *An investigation of the developmental levels of reflective judgment and associated critical thinking skills*. Unpublished doctoral dissertation, University of Iowa, 1980.

Sanford, N. *The American College*. New York: Wiley and Sons, Inc., 1962.

Strange, C.C. and King, P.M. Intellectual development and its relationship to maturation during the college years. *Journal of Applied Developmental Psychology*, 1981, *4*, 281-295.

Welfel, E.R. How students make judgments: Do educational level and academic major make a difference? *Journal of College Student Personnel*, in press.

Wood, P.K. *An analysis of the structural relationship between two tests of critical thinking and reflective judgment*. Unpublished master's thesis, University of Iowa, 1980.